In B4

~~CLAIMS~~

1. An emitter for emitting electromagnetic pulses, comprising:

- a generator (2) for generating at least one electromagnetic pulse; and
- at least one optical fiber (F) capable of transmitting an electromagnetic pulse generated by said generator (2) for the purpose of emitting it,

characterized in that it includes in addition at least one optical cavity (3A, 3B, 3C, 3D):

- which is placed in the path of an incident electromagnetic pulse transmitted by said optical fiber (F); and
- which has an input provided with a first partially reflecting mirror (M1A, M1B, M1C, M1D) and an output provided with a second partially reflecting mirror (M2A, M2B, M2C, M2D), said first and second mirrors being arranged so as to create at the output of said optical cavity (3A, 3B, 3C, 3D), from a single incident electromagnetic pulse, a train of emitted electromagnetic pulses which have variable geometry characteristics and are associated with said incident electromagnetic pulse.

Sub B7

2. The emitter as claimed in claim 1, characterized in that at least one of said first and second mirrors (M1A, M2A) is linked directly by opposed faces to two lengths (F1, F2, F3) of said optical fiber (F).

3. The emitter as claimed in claim 1, characterized in that at least one of said first and second mirrors (M1B, M2B, M1C, M2C, M1D, M2D) is linked, via an associated optical coupling means (C1B, C2B, C1C, C2C, C1D, C2D), to two lengths (F1, F2, F3) of said optical fiber (F).

4. The emitter as claimed in claim 3,

characterized in that said optical coupling means (C1B, C2B) comprises two lenses (4 to 7) optically linking said two lengths (F1, F2, F3) of the optical fiber (F), the mirror (M1B, M2B) associated with said optical coupling means (C1B, C2B) being placed between said lenses (4 to 7).

5. The emitter as claimed in claim 3, characterized in that said optical coupling means comprises at least one graded-index lens (8 to 13).

6. The emitter as claimed in any one of the preceding claims, characterized in that it comprises means (16) preventing an electromagnetic pulse generated by said generator (2) from returning toward the latter.

7. The emitter as claimed in any one of the preceding claims, characterized in that said generator (2) is capable of generating at least two pulses, of different wavelengths.

8. A test system for determining the losses of a fiber-optic component, said system comprising:

- an optical source (1D) capable of emitting at least one electromagnetic pulse;
- a photoreceiver (20) capable of measuring characteristics of an electromagnetic pulse emitted by said optical source (1D) and transmitted by a fiber-optic component (19, 21); and
- data acquisition, storage and processing means (22, 24) which receive the measurements generated by said photoreceiver (20) for said fiber-optic component (19) to be tested and for a reference fiber-optic component (21) and which determine, on the basis of these measurements, the losses of said fiber-optic component (19) to be tested,

characterized in that said optical source comprises the emitter (1D) specified under any one of claims 1 to 7.

9. The test system as claimed in claim 8,

B7

characterized in that the optical fiber (F) of the emitter (1D) for emitting electromagnetic pulses has at least two characteristics, the core diameter and the numerical aperture, which are predetermined and in that at least one of said characteristics of said optical fiber (F) is identical to that of the fiber-optic component (19) to be tested.

Sub A2

10. The use of the emitter specified under any one of claims 1 to 7, in order to determine the value of at least one characteristic parameter of a fiber-optic component, in which use:

a) at least one electromagnetic pulse is generated, which is emitted into said fiber-optic component (19);

b) measurements relating to said electromagnetic pulse transmitted by said fiber-optic component (19) are carried out; and

c) said characteristic parameter is determined at least from said measurements,

characterized in that, in step a), an electromagnetic pulse train is generated by means of said emitter, at least some of the electromagnetic pulses of which have different values for at least one optical characteristic, and in that, in step c), the value of said characteristic parameter is determined for each of said different electromagnetic pulses of said pulse train.